

HP E2466C

Preprocessor Interface for the Intel Pentium® II Processor

**For use with the HP 16500
logic analysis system**

The HP E2466C preprocessor interface provides a fast, reliable connection to a Pentium® II processor-based system and allows system design engineers to easily trace system operation. The preprocessor and its inverse assembler software for the HP 16500 logic analysis system simplify the analysis of multiprocessor systems that use Pentium II processors. Program execution is decoded into familiar Intel Architecture mnemonics with MMX™ technology extensions. Bus timing diagrams displayed as waveforms are labeled by signal name for quickly identifying bus conditions. In addition, time to insight into critical Pentium II system problems is reduced since the HP E2466C uses the power of the HP 16505A prototype analyzer in conjunction with the HP 16500C logic analysis system.

State Number	Phys Addr	Pentium(R) II processor inverse assembly
Decimal	Hex	Mnemonics/Hex
causing: 01F41ED1 branch trace sym1		
target: 01F41EB9		
318	024AEEB9 8B4DFC	MOV CX,[DI-04h]
	024AEEBC 8B45F8	MOV AX,[DI-08h]
	024AEEBF 0155FC	ADD [DI-04h],DX
	024AEEC2 0155F8	ADD [DI-08h],DX
	024AEEC5 8B18	MOV BX,[BX+SI]
	024AEEC7 3919	CMP [BX+DI],BX
	024AEEC9 7537	JNE 024AEF02h
	024AEECB 47	INC DI
	024AEECC 397DF4	CMP [DI-0Ch],DI
	024AEECF 7FE8	JG 024AEEB9h
326	024AEEB8 01F8458B FC4D8B00	mem rd code sym1
	024AEEB0 000004BA 1D7EF47D	mem rd code sym1
	024AEEA8 39FF332F 7E00D47D	mem rd code sym1
	024AEEA0 83000000 00F045C7	mem rd code sym1
332	causing: 77FA8F84 branch trace sym0	
	target: 77FA8F6C	
	01399F6C D1E0	SHL AX,1
	01399F6E D1D2	RCL DX,1
	01399F70 D1D6	RCL SI,1
	01399F72 1BFF	SBB DI,DI
	01399F74 3BF3	CMP SI,BX
	01399F76 F5	CMC
	01399F77 1BED	SBB BP,BP

Figure 1.
Inverse assembly
listing

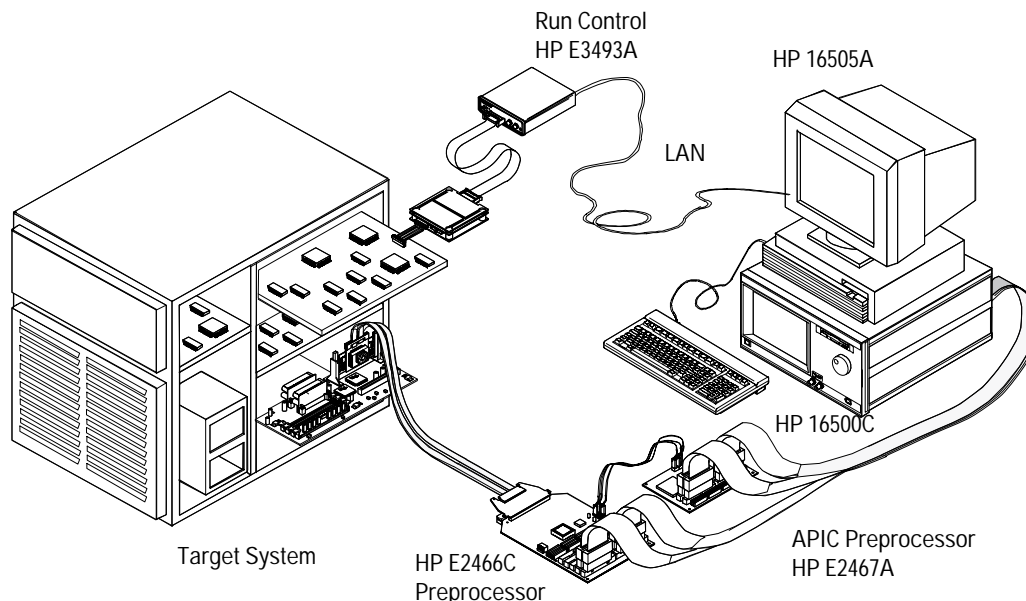


Figure 2.
The HP E2466C
provides easy
connection from
the HP 16500
logic analysis
system to the
target system.

Capturing Instruction Flow

The HP E2466C inverse assembler displays only those Pentium® II processor instructions that are executed by the processor(s). The inverse assembler software provided uses the Pentium II processor's Branch Trace Messages (BTM), to determine which instructions are fetched and executed. Instructions fetched but not executed are not displayed. Displaying only those instructions executed saves you time, by making it easy for you to follow program flow.

Identifying Processor

The HP E2466C inverse assembler highlights the instructions executed by each processor in color. Determining which processor executed a particular code segment in a multiprocessor system is simple. As you follow the instruction listing on the display of the HP 16505A prototype analyzer, the color of the trace changes when another processor takes an execution branch. Additional information provided in the listing display includes priority agent (I/O) activity displayed in color.

Selecting Transactions

Focus your analysis of the activities on the Pentium II processor bus by choosing to display those operations, in color, that give you the best view of the problem. The inverse assembler allows you to use color to emphasize transaction type or agent activity. Included with the HP E2466C is a complete set of filters that allow you to selectively list transactions by agent and transaction type. For example, you can list only branch trace messages originating from agent 0.

Viewing Bus Timing

Visibility into bus timing of the Pentium II processor is made easy with the HP E2466C preprocessor. Configuration software provided with the HP E2466C presets the HP 16500C logic analyzer's timing display into Pentium II processor bus-specific-signal groupings. Bus timing measurements are made simply and directly using markers active in the logic analyzer timing display.

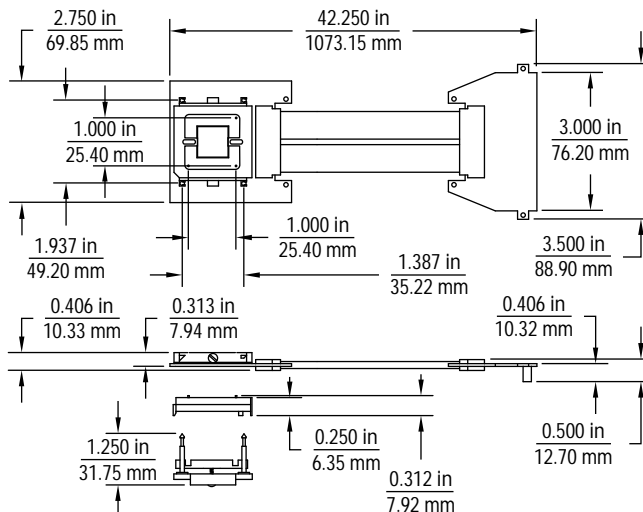


Figure 3.
HP E2466C
cable
mechanical
dimensions

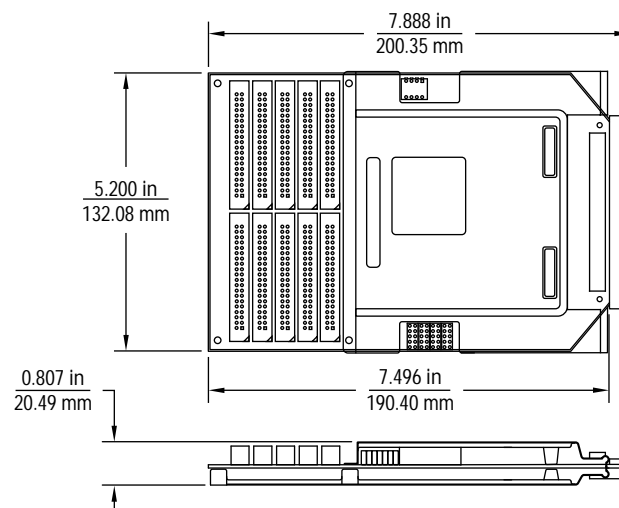


Figure 4.
HP E2466C
board
mechanical
dimensions

Features

Display Filter Options

Selectively display the most important transactions by using state listing filters.

Agents

Symmetric 0:	Show/Suppress
Symmetric 1:	Show/Suppress
Symmetric 2:	Show/Suppress
Symmetric 3:	Show/Suppress
Priority:	Show/Suppress

Transaction Types

Deferred Replies:	Show/Suppress
Interrupt Acknowledge:	Show/Suppress
Special Transactions:	Show/Suppress
Branch Trace Messages:	Show/Suppress
I/O Reads:	Show/Suppress
I/O Writes:	Show/Suppress
Memory Read & Invalidate:	Show/Suppress
Memory Reads - Data:	Show/Suppress
Memory Reads - Code:	Show/Suppress
Memory Writes:	Show/Suppress
Memory Writebacks:	Show/Suppress

Note: Agents and transaction type filter terms are combined in display by "ANDing."

Clock Qualification

Expanded Mode: Enables logic analyzer clocking while transactions are outstanding on the Pentium II processor bus.

Compacted Mode: Maximizes logic analyzer memory utilization by only enabling clocking during transaction phases and transfer of reset configuration information on the Pentium II processor bus.

Configuration and Connectivity

The configuration and inverse assembly software provided with the HP E2466C supports the following HP 16500 logic analysis system configurations:

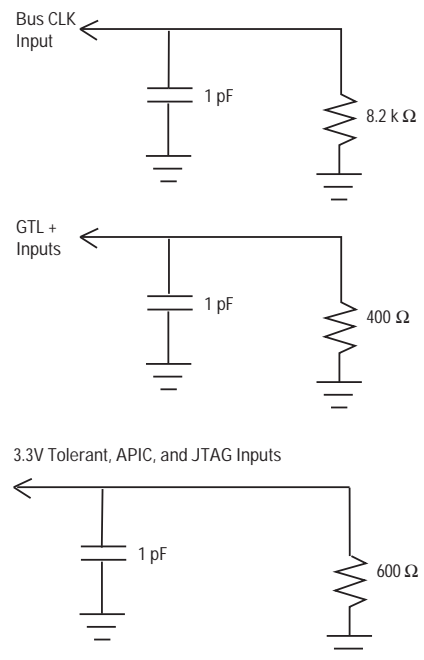
Mainframe	HP 16500B/C
Prototype analyzer	HP 16505A
Logic analyzer cards	HP 16550A (qty. 2) HP 16554A (qty. 3) HP 16555A/D (qty. 3) HP 16556A/D (qty. 3)
Processor run control	HP E3493A
Pentium II processor preprocessor	HP E2466C

To see a system connection setup, see Figure 2.

Specifications

Processor	Pentium II processor
Package	Single Edge Connector (S.E.C.) Cartridge
Logic Analysis Probes Required	10 (compatible with HP 16550A, 16554A, 16555A/D, and 16556A/D logic analyzer modules for the HP 16500C Logic Analysis system)

Signal Line Loading



Clock Frequency	66 MHz maximum for external BCLK
Target Signal Amplitude	800 mV p-p minimum for all GTL+ signals
Timing Analysis	3 ns channel-to-channel skew (typical)
Power Requirements	Supplied by the logic analyzer
Environmental Temperature	
Operating	0 to 55 °C (+32 to +131 °F)
Nonoperating	- 40 to 75 °C (- 40 to +167 °F)
Altitude	
Operating	4,600 m (15,000 ft)
Nonoperating	15,300 m (50,000 ft)
Humidity	Up to 90% noncondensing. Avoid sudden, temperature changes that could cause condensation within the instrument.

Ordering Information

HP E2466C

Preprocessor interface for the Intel Pentium II processor (requires HP 16500B/C mainframe and the HP 16505A prototype analyzer)

HP 16500C

Logic analysis system mainframe

HP 16505A

Prototype analysis system

HP E2479A

Upgrades an HP 16500A or HP 16500B mainframe to an HP 16500C mainframe

State and Timing Logic Analyzer Modules (require an HP 16500B/C mainframe)

HP 16550A

100-MHz state/500-MHz timing logic analyzer module

HP 16554A

500K-Sample, 70-MHz state/250-MHz timing logic analyzer module

HP 16555A/D

1M/2M-Sample, 110-MHz state/500-MHz timing logic analyzer module

HP 16556A/D

1M/2M-Sample, 100 MHz state/400 MHz timing logic analyzer module

HP E3493A

Intel Pentium Pro and Pentium II processor run control

HP E2467A

APIC bus preprocessor

HP B4600A

System Performance Analysis tool set (for use with the HP 16505A prototype analyzer)

Warranty Information

This Hewlett-Packard product has a warranty against defects in material and workmanship for a period of one year from date of shipment. During this warranty period, Hewlett-Packard Company will, at its option, either repair or replace products that prove to be defective.

Related HP Literature

HP 16500C Logic Analysis System and HP 16505A Prototype Analyzer, 5965-3187E

HP E2467A Intel APIC Bus Preprocessor Interface, 5965-3000E

HP E3493A Pentium® Pro Processor Probe, 5965-6036E

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<http://www.hp.com/go/emulator>

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Englewood, CO 80155-4026
1 800 452 4844

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L4W 5G1
(905) 206 4725

Europe:

Hewlett-Packard
European Marketing Centre
P.O. Box 999
1180 AZ Amstelveen
The Netherlands
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Japan:

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Measurement Assistance Center
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